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The Impact of China's Fiscal Expenditure in Agriculture on Farmer's Income

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Abstract Based on the account of the vital role which the national finance played in supporting agriculture, the thesis presents the current situation of financial support for agriculture in China, in terms of the limited scale and irrational structure of financial support expenditure in agriculture. On the basis of the brief introduction of the current level of Chinese farmers' income, the thesis discusses the effects of scale and irrational structure of financial support expenditure in agriculture on the farmers' income, according to the related data of financial support expenditure in agriculture and rural per capita net income. The results indicate that the calculating regression equation has a remarkable explanation power, reflecting the positive role of financial support expenditure in agriculture played by national finance in increasing the farmers' income. As regards the structure of financial support expenditure in agriculture at present, according to the proportion from high to low, the expenditure primarily consists of three parts from high to low in sequence as follows: productive expenditure and funds for public undertakings, capital construction expenditure, and rural relief expenditure plus science and technology funds. Such sequence deviates from the marginal production effects of financial support expenditure in agriculture and the correlation of farmers' income, which demonstrates the severe irrationality of the structure of financial support expenditure in agriculture. Corresponding countermeasures are put forward as follows: on one hand, we should continue intensifying the efforts to support agriculture financially in order to form a regular increase mechanism; on the other hand, we should adjust and optimize the structure of financial support expenditure in agriculture, and further crystallize the investment flows.

Key words Financial expenditure in agriculture, Farmer's income, Urban and rural incomes, Rural per capita income, China

In recent years, the CPC Central Committee and government attach great importance to issues concerning agriculture, countryside and farmers, propose the new concept of "national finance illuminating rural areas", constantly increase financial support for agriculture, promote grain production and farmers' income, and achieve remarkable results. But it is undeniable that, despite the growing farmers' income in China, the distending income gap between urban and rural residents still exists. The income increase effect of financial support expenditure on agriculture is not so notable, so it is urgent to take effective measures to reinforce income increase effect of financial support expenditure.

1 The status quo of financial support expenditure in agriculture in China

National financial investment in agriculture, a very important part of macroeconomic policies, is the key to national agricultural development. The scale and structure of financial support in agriculture is the overall planning of financial expenditure, playing a key role in rural economic development and farmers' income in rural areas.

1.1 The limited scale of financial support expenditure in agriculture Since China joined the WTO in 2001, the agricultural development has been steadily supported. In 2006, agricultural tax and tax on special agricultural products were abolished throughout China, ending a 2 600-year history of paying

taxes on the part of farmers. Especially in the latest three years, the financial expenditure in agriculture continuously rose with 100 billion yuan every year. In 2009, the central government spent 725.49 billion yuan on agriculture, countryside and farmers, reaching a record high, an increase of nearly 5 times of 123.154 billion yuan in 2000. The financial support expenditure in agriculture rose by more than 30% in 2007 and 2008. Despite the financial crisis, the agricultural financial expenditure in 2009 has also increased by 21.82% on the previous year (Table 1).

The absolute scale of financial support expenditure in agriculture grows rapidly, but the relative scale of financial support expenditure in agriculture grows slowly. The proportion of agricultural financial expenditure in total expenditure presents hovering and slow growth trend, the highest the year 2009 only accounting for 9.55% of fiscal expenditure which increases by less than 2 percentage points in comparison with the year 2000. However, the proportion of agricultural financial support expenditure in total agricultural GDP grows, from 8.37% in 2000 to 20.4% in 2009, which can be ascribed to the sluggish growth of agricultural GDP. According to the statistics in the past decade, it shows that the proportion of agricultural GDP in gross GDP declines in successive years (Table 1), from 15.1% in 2000 to 10.6% in 2009, significantly lagging behind the secondary and tertiary industries. In 2009, the rural population, accounting for 55% of the total population in China, created only 10.6% agricultural added value of China's GDP. Thus the limited relative scale of the financial support expenditure in agriculture, to some extent, impedes the agricultural production and rural incomes.

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Table 1 Financial expenditures for agriculture from the year 2000 to 2009

Year	Total financial expenditure ×10 ⁸ yuan	Sequential growth rate of financial expenditure in agriculture // %	The proportion of agri- cultural expenditure in financial expenditure // %	Agricultural GDP		The proportion of agricultural expenditure in agricultural GDP // %
				Absolute amount ×10 ⁸ yuan	Proportion in GDP %	
2000	1 231.54	13.43	7.75	14 944.7	15.1	8.37
2001	1 456.73	18.29	7.71	15 781.3	14.4	9.39
2002	1 580.76	8.51	7.17	16 537.0	13.7	9.73
2003	1 754.45	10.99	7.12	17 381.7	12.8	10.28
2004	2 337.63	33.24	8.28	21 412.7	13.4	11.16
2005	2 450.31	4.82	7.22	22 420.0	12.2	10.62
2006	3 172.97	29.40	7.85	24 040.0	11.3	13.20
2007	4 318.7	36.11	8.67	28 627.0	11.1	15.09
2008	5 955.5	37.90	9.54	34 000.0	11.3	17.52
2009	7 254.9	21.82	9.55	35 477.0	10.6	20.40

Note: The date are from *China statistical Yearbook in 2009*^[1].

1.2 The irrational structure of financial support expenditure in agriculture

The structure of the financial fund for agriculture determines the public satisfaction level of expenditure in various agricultural sectors. In the light of China's current statistical standards, the agricultural support funds include productive expenditure and funds for public undertakings, capital construction expenditure, and rural relief expenditure plus science and technology funds. Consequently, in conjunction with the data in Table 1 and related documents, the following conclusion can be deduced after analysis. Firstly, the productive expenditure and funds for public undertakings, accounting for 60% of the agricultural expenditure (Table 2), is used for agricultural administrative institutions at all levels which nominally belongs to agricultural support expenditure, but a considerable portion of which flow to city. For instance, in 2003, the fiscal budget of Hunan Province incorporated 0.7 billion yuan as the provincial level agricultural support funds, but approximately 0.3 billion yuan was used as capitation fee and funds for public undertak-

ings in provincial level institutions^[2]. Secondly, the capital construction expenditure shows rapid decline, from 33.65% in 2000 to 15.47% in 2007, indicating China's infrastructure, like water conservancy and agricultural grid, is still very weak. Thirdly, the science and technology fund has been hovering at a low level, the highest the year 2005 only accounting for 0.81%, while China's current agricultural science and technology innovation ability, in general, is only tantamount to that of the developed countries in the 1970s, which can be attributed to the severe shortage of agricultural technology and education, and low contribution rate of agricultural technology. Finally, the rural relief expenditure is scarce, the proportion remaining at 3%–7% of total expenditure in agriculture. Since the rural social security system is not perfect, there are a large number of vulnerable groups in need of relief, and rural income gap further expands. In short, China's fiscal expenditure structure of agriculture is not quite reasonable, profoundly hindering the positive effect of financial expenditure on farmers' income increase.

Table 2 Structure of agricultural financial expenditure in the years 2000–2008

Year	Productive expenditure and funds for public undertakings		Capital construction expenditure		Science and technology funds		Rural relief expenditure	
	Absolute value ×10 ⁸ yuan	Proportion %	Absolute value ×10 ⁸ yuan	Proportion %	Absolute value ×10 ⁸ yuan	Proportion %	Absolute value ×10 ⁸ yuan	Proportion %
2000	766.89	62.27	414.46	33.65	9.78	0.79	40.41	3.28
2001	917.96	63.02	480.81	33.01	10.28	0.71	47.68	3.27
2002	1 102.70	69.76	423.80	26.81	9.88	0.63	44.38	2.81
2003	1 134.86	64.68	527.36	30.06	12.43	0.71	79.80	4.55
2004	1 693.79	72.46	542.36	23.20	15.61	0.67	85.87	3.67
2005	1 792.40	73.15	512.68	20.92	19.90	0.81	125.38	5.12
2006	2 161.35	68.12	504.28	15.89	21.42	0.68	182.04	5.74
2007	2 934.71	67.95	668.03	15.47	30.83	0.71	305.16	7.07

Note: The data are from *China statistical Yearbook in 2008*^[3].

2 The analysis of impact of financial support expenditure in agriculture on farmer's income

In recent years, the income of peasants has increased significantly, but income gap between urban and rural residents is not bridged. Agricultural support funds, as an important means to increase farmers' income, has a limited scale and irrational structure, which leads to the inefficient use of agricultural support funds, and the hovering low level farmers' income.

2.1 The status quo of farmers' income in China

The CPC Central Committee and State Council attach great importance to issues concerning agriculture, countryside and farmers. With the agricultural policy of financial benefits being implemented, the income of Chinese farmers has been rapidly increasing (Table 3). In 2000, the per capita net income of rural households was 2 253.4 yuan, rising to 5 153 yuan in 2009, while the per capita net income of rural residents in 1999 still can not reach the level of 6 280 yuan of urban residents in 2000. In the same period, the per capita net income of urban

households increased from 6 280 yuan in 2000 to 17 175 yuan in 2009. Income gap between urban and rural areas expanded from 2.79:1 in 2000 to 3.33:1 in 2009. In terms of the growth rate of per capita net income, only in the year 2004 and 2008, the growth rate of rural household income was slightly higher than the town, but in other years the growth rate of rural house-

hold income was notably lower than the town. It indicates that the level of farmers' income is low and lags behind the growth of income of urban residents, and the income gap between urban and rural areas tends to expand further. This also reflects the limited scale and financial strength of agricultural expenditure which need further adjustment.

Table 3 Urban residents' income and rural per capita income in the years 2000 –2009

Year	Per capita net income			Nominal growth rate of per capita income		
	Urban households yuan	Rural households yuan	Urban-rural income gap	Urban households %	Rural households %	Urban-rural income gap
2000	6 280.0	2 253.4	2.79:1	7.2	1.9	3.79:1
2001	6 859.6	2 366.4	2.9:1	9.2	5.0	1.84:1
2002	7 702.8	2 475.6	3.1:1	12.3	4.6	2.67:1
2003	8 472.2	2 622.2	3.23:1	10.0	5.9	1.69:1
2004	9 421.6	2 936.4	3.21:1	11.2	11.9	0.94:1
2005	10 493.0	3 254.9	3.22:1	11.4	10.8	1.06:1
2006	11 759.5	3 587.0	3.28:1	12.1	10.2	1.19:1
2007	13 785.8	4 140.4	3.33:1	17.2	15.4	1.12:1
2008	15 781.7	4 760.6	3.31:1	14.5	15.0	0.97:1
2009	17 175.0	5 153.0	3.33:1	8.8	8.2	1.07:1

Note: The data are from 2009 *China Statistical yearbook*.

2.2 The regression analysis of the total financial expenditure in agriculture and farmers' income

According to the data of financial expenditure and per capita net income of farmers from 1978 to 2009, the measurement model is established. The total financial expenditure is put as the explanatory variable X , net income of farmers variable Y . In order to eliminate data heteroscedasticity effects, I take the logarithm of both sides. Thus the regression equation is established as follows:

$$\text{LOG}(Y) = C(1) + C(2) \times \text{LOG}(X)$$

By Eviews software analysis, the findings are as follows:

$$\text{LOG}(Y) = 1.661\ 668\ 819 + 0.826\ 280\ 718\ 3 \times \text{LOG}(X)$$

$$(5.329\ 201) \quad (17.147\ 78)$$

$$DW = 1.605\ 7 \quad R = 0.907\ 421$$

DW of regression equation is 1.61, indicating that the self-relevance of independent variables is not obvious, and goodness of fittest R is 0.91. Among the variables, there exists notable linear relationship. The calculation result shows that the regression equation has a strong explanatory power, reflecting that the national financial support expenditure in agriculture plays a positive part in increasing farmers' income. The regression coefficient is 0.83, showing that when the national financial support expenditure in agriculture increases by 1%, the net income of farmers will increase by 0.83%.

2.3 The impact of the structure of financial support expenditure in agriculture on farmers' income

The marginal output effect of each item coupled with the correlation between each item and rural per capita net income, have become the best indicators of measuring the impact of capital use rate and structure of financial support expenditure in agriculture on farmers' income. According to the results achieved by scholars such as Li Huanzhang and so on, the marginal output effect of science and technology funds is highest, which is followed by capital expenditures. The productive expenditure and funds for public undertakings is the worst^[4]. Two scholars Zhao Xia and Mu Yueying use the relevant data from 1998 to 2006, and obtain correlation values between financial support expenditure in

agriculture and farmers' income through the measurement analysis. The correlation value between science and technology funds and per capita net income of farmers is the highest, reaching 0.82, indicating that the science and technology funds plays a major part in increasing farmers' income; the capital construction expenditure reaches 0.80, to a great extent, increasing farmers' income; the rural relief expenditure reaches 0.70, to a certain extent, promoting farmers' income; finally, productive expenditure and funds for public undertakings reaches 0.6, playing the weakest role in increasing farmers' income^[5].

According to previous analysis, the proportion of China's current financial support expenditure in agriculture, from high to low, is as follows: productive expenditure and funds for public undertakings, capital construction expenditure, and rural relief expenditure plus science and technology funds. Such sequence deviates from the marginal production effects of financial support expenditure in agriculture and the correlation of farmers' income, which demonstrates the severe irrationality of the structure of financial support expenditure in agriculture. Productive expenditure and funds for public undertakings have the biggest share in our financial support expenditure in agriculture, but play the weakest part in promoting farmers' income, because this expenditure benefits agriculture and the whole society, and the most portion of increase belongs to administrative and institutional expenditure increase, difficult to benefit farmers and increase farmers' income. The correlation between science and technology funds and farmers' income is the biggest, but over the past decade, the proportion of science and technology funds in the total agricultural financial expenditure is less than 1%. The science and technology funds in 2007 reached the highest value of 3.083 billion yuan, accounting for only 0.71% of financial support expenditure in agriculture, 0.11% of total output value of agriculture, far lower than world average level (1%) issued by the FAO. Meanwhile, the contribution rate of science and technology in agricultural growth in China is 42%, in European countries is more than 70%, and in the United States is 80%. The conversion rate of agriculture in

developed countries is 60%, while it is only 30%–40% in China^[6]. This shows that the level of agricultural scientific research in China is low, and scientific research has poor ability to increase income of farmers.

3 Countermeasures and suggestions

3.1 Continue to increase financial support for agriculture and form the stable growth mechanism In recent years, the central government continues to increase investment in agriculture and provide a reliable guarantee for farmers' income growth. However, the relative scale of financial fund for agriculture is still small, and urban and rural income gap has not been narrowed. In accordance with the 42nd article in *The People's Republic of China Agricultural Law*, the annual growth rate of total agricultural investment of national finance should be higher than the growth rate of the regular national fiscal revenue. Meanwhile, new financial resources should be channeled into China's agricultural sector, forming the diverse main body of agricultural investment in order to promote agricultural development and increase their income. Strict implementation of the 2008 central government policy should be carried out. The rise margin of financial support expenditure in agriculture should be significantly higher than that of the previous year; the rise margin of national fixed assets investment used in rural areas should be significantly higher than that of the previous year; the rise margin of government land transfer revenue for rural construction should be significantly higher than that of the previous year.

3.2 Adjust and optimize the structure of financial support expenditure in agriculture, and further crystallize the investment flows

3.2.1 Increase science and technology funds in agriculture, and exert the positive role of agricultural science and technology in increasing farmers' income. Due to the limited agricultural resources, the potential of increasing agricultural production value merely through the expansion of cultivated land is negligible. Because of the highest marginal effect and correlation between science and technology funds and farmers' income, only through science and technology can we promote agricultural development and increase their income effectively in the long run. Therefore, governments at all levels, from long-term perspective, should substantially increase the investment share of agricultural science and technology, focus on basic research and high-tech research, and strengthen the popularization and application of agricultural science and technology.

3.2.2 Increase capital construction expenditure moderately, in order to create good condition beneficial to raising farmers' income. The capital construction expenditure is the main source of forming agricultural fixed capital and increasing agricultural production capacity, which can effectively alleviate the uncertainty and risk of agricultural production imposed by natural environment on agricultural production. So we should expand the share of this investment in agricultural financial expenditure, so that agricultural infrastructure construction can adapt to the requirements of the stable development of agriculture and farmers' income growth. Such kind of investment should be made in the rural small and medium scale infrastructure construction focusing on improving rural production level and increasing farmers' income in rural areas.

In addition, we should increase funds for public undertakings focusing on improving the rural public service level, such as related agricultural irrigation facilities, rural transportation facilities, and public facilities construction in backward rural areas, in order to exert the positive part of capital construction expenditure in increasing farmers' income.

3.2.3 Continue to increase rural relief expenditure and narrow the income gap in rural areas. The rural relief expenditure is related to the establishment and perfection of rural social security system. The current problems of rural relief funds comprise scanty funds, small cover areas, low wage standard and so on. In the future, government at all levels should actively raise funds, increase financial support expenditure in agriculture continuously, put all the impoverished households into subsistence allowances range, ensure the people's life condition in rural areas and improve farmers' income.

3.2.4 Streamline the administration institutions in various agricultural departments and reduce funds for public undertakings. At present, the fund for public undertakings is so large, due to the inefficient personnel and structure of every agricultural department. According to the survey, some townships even have agricultural economy station, agricultural technology station, animal husbandry station, agricultural machinery station, water conservancy station, forestry station, soil and fertilizer station and other institutions. According to the reform of national institutions and public institutions, after referring to the practice in developed countries, we can merge and streamline the Bureau of Forestry, Bureau of Animal Husbandry, Bureau of Fisheries and the like. We can save capital construction expenditure, and improve the efficiency of funds use and management level. By paring down the funds for public undertakings and improving the efficiency of funds use, we should put the limited financial support expenditure in agriculture into those programs that can effectively increase farmers' income.

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